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CASE REPORT

GINGIVAL DEPIGMENTATION WITH COMBINATION TECHNIQUE: A CASE REPORT

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A B S T R A C T

Smiling face expresses joy and self-confidence of an individual. The beauty of smile not only depends upon appearance of teeth alone but gingival tissue also. An attractive smile depends upon gingival health emphasizing on color, size and position of gingiva. Brown colored melanin discoloration of gingival tissues poses a big challenge of achieving gingival esthetics especially in patients having gummy smile. Melanin, a brown pigment, is the most common cause of endogenous pigmentation of gingiva. Gingival melanin pigmentation occurs in all races. The degree of pigmentation varies from person to person with no sex predilection. Patients concerned for esthetic commonly complaint of "brown-black gums" and want to get treated by depigmentation. Till date various treatment modalities (like abrasion, lasers, cryosurgery, scrapping, partial thickness flap, electro surgery etc.)are available for gingival depigmentation having their own advantages and drawbacks/limitations. This paper presents a case of gingival depigmentation done with combination of scalpel surgery and bur abrasion with a brief review of literature about gingival depigmentation.

INTRODUCTION

Oral pigmentation is seen in all races with negligible significant difference between males and females. Pattern of pigmentation of oral mucous membrane varies from individual to individual and even different individuals of the same race and within different areas of the same oral mucosa or oral cavity. Gingival pigmentation is the result of melanin granules which are produced by melanoblasts/ melanocytes present in basal and suprabasal cell layers of the epithelium. Excessive gingival melanin pigmentation or hyperpigmentation is a major esthetic problem for many people. Factors like number and size of blood vessels, thickness of the epithelium, level of keratinization, quantity of pigments counts for gingival coloration and melanin pigment is the main cause of endogenous pigmentation of gingiva giving it dark brown to black coloration. This melanin pigmentation of gingiva is not a medical problem but is an esthetic problem and embarassment, particularly if the pigmentation is visible during speech and smiling and patients usually complaints of black gums[1,2,3]. Melanocytic Stimulating Hormone (MSH, stimulated by MSH stimulating factor) stimulates the production of melanin granules in melanocytes which in turn causes darkening of the skin by increasing the skin pigmentation.

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Glucocorticoids have an inhibiting effect on MSH, when there is adrenal insufficiency; there is reduced glucocorticoids secretion increase in MSH increase melanin pigmentation. On clinical examination gingival melanin hyperpigmentation present as diffuse light to dark brown and sometimes blue black areas seen commonly on attached gingiva. The color is often a diffuse, symmetric, ribbon like dark band or irregularly shaped patch with a well-demarcated border. Assessment of amount of pigmentation can be done by Dummett: Gupta Oral Pigmentation Index (DOPI) given in 1964 (Table-1)[4,5,6].

Score	Pigmentation
0	No clinical pigmentation (pink gingiva).
1	Mild clinical pigmentation (mild light brown color).
2	Moderate clinical pigmentation (medium brown or mixed pink and brown color).
3	Heavy clinical pigmentation (deep brown or bluish black color).

Table-1: Dummett: Gupta Oral Pigmentation Index (DOPI).

Various local and systemic factors are responsible for brown or dark pigmentation and discoloration of gingiva. Physiologic melanin gingival pigmentation must be differentially diagnosed from pigmentation caused by systemic conditions such as endocrine disturbances, Albright's syndrome, malignant melanoma, antimalarial therapy, Peutz-Jeghers syndrome, trauma, hemochromatosis and chronic pulmonary disease. Prior indication for depigmentation includes patients demand and concern for esthetics. And selection of depigmentation method depends upon clinical experiences and

individual preferences[3,5]. Till date various treatment modalities (like abrasion, lasers, cryosurgery, scrapping, partial thickness flap, electro surgery etc.) are available for gingival depigmentation having their own advantages and drawbacks/limitations. Roshni & Nandakumar in 2005 classified different gingival depigmentation methods as given in table-2[7].

Gingival Depigmentation Methods	
Surgical Methods (aimed at removing the pigmented gingiva)	**Chemical Methods** (aimed at masking the pigmented gingiva)
Scalpel surgical technique	Free gingival graft
Bur abrasion method	Acellular dermal matrix allograft.
Electrosurgery,	
Cryosurgery	
Lasers	
Radiosurgery	

Case Report

A 20 year old male patient visited to the department of Oral medicine and radiology with the chief complaint of black gums since childhood. The patient wanted any kind of esthetic treatment which could make his "black" colored gums look better as he feels conscious while speech and smiling. There was no relevant medical history. On intra-oral clinical examination a healthy periodontium was seen with gingival melanin hyper pigmentation on the maxillary and mandibular arch which was moderately diffused on broad area of the entire anterior labial attached gingiva with DOPI 3 [Moderate clinical pigmentation (medium brown or mixed pink and brown)]. The gingiva was deeply pigmented from right first premolar to left first molar in maxilla and mandible (Figure-1).

Figure 1 Gingival Melanin Pigmentation in both arches.

Figure 2 Gingival tissues 14 days post-operatively.

A combination technique (scalpel surgery with bur abrasion) was planned to perform the depigmentation. The entire procedure was explained to the patient and written consent was obtained. Complete medical examination, family history and blood investigations were done to rule out any contraindication for surgery.After giving local anesthesia (Lignocaine with adrenaline in the ratio 1:100000 by weight) a Bard Parker handle with a No.15 blade and a high speed hand piece with diamond bur were used to remove the pigmented layer. The blade was held parallel to the long axis of the teeth with Minimum pressure. Hemorrhage was controlled by giving pressure packs with sterile gauze soaked in local anesthetic agent. After removing the entire pigmented epithelium along with a thin layer of connective tissue with the scalpel, abrasion with diamond bur was done to get the physiological contour of the gingiva, with simultaneous saline irrigation of the exposed surface. Medium size round bur was used because small bur might produce small pits rather than surface abrasion. While using the bur minimal pressure was applied with feather light brushing strokes and without holding bur in one place to prevent thermal trauma and permanent harm to underlying tissue. After completing the procedure the surgical area was covered with a periodontal dressing pack. Post-surgical instructions were given to patient and was advised antibiotics (Amoxicillin 500mg, thrice daily for five days), analgesics (Ibuprofen with Paracetemol, thrice daily for three days) and chlorhexidine mouthwash (12 hourly for one week).The patient was reviewed at the end of 1 week. The healing process was proceeding normally and patient did not report any discomfort. The patient was advised to continue the chlorhexidine mouthwash for another week. After two weeks follow up, re-epithelialization was complete and healing was found to be satisfactory (Figure-2). Patient had no complaints of postoperative pain or sensitivity. Upon 6 months follow up, the gingiva was found healthy with no repigmentation seen.

DISCUSSION

A smile of a person is an expressesion of joy, happiness, kindness, success, sensuality, affection, courtesy and self-confidence. The harmony of the smile is determined not only by the shape, position and color of the teeth but also by the shape, position and color of gingival tissues. Gingival health and appearance are most important part of an attractive smile. Gingival pigmentation results from melanin granules, which are produced melanoblastic activity. Although melanin pigmentation of the gingiva is completely benign and does not present a medical problem, complaints of 'black gums' are commonly given by patients who have a very high smile line the so called gummy smile. Hyperpigmentation of the gingiva is the result of excess amount of melanin pigment deposition which is produced by the melanocytes present mainly in the basal and the suprabasal cell layers of the epithelium. Oral melanin hyperpigmentation is normally seen in individuals of Africa and East Asia [3,8].

Technique to be used for gingival depigmentation depends upon factors like clinical experience, patient's affordability and individual preferences. Various methods utilized for gingival depigmentation are illustrated in table-2. Scalpel technique first exemplified by Dummet and Bolden in 1963, is one amongst the best and commonly followed for gingival depigmentation. It is most popular because healing period of scalpel wounds is shorter than with diode laser and also require conventional armamentarium. A limitation of scalpel technique includes its contraindication for thin gingival areas, as removal of pigmented gingival epithelium may lead to gingival recession[9,10]. On the other hand bur abrasion method was first practiced by Ginwalla et al in 1966. In this technique de-epithelisation of pigmented areas of the gingiva is done by using high speed rotary instruments (medium sized round or

tapered diamond bur) after adequate local anesthesia. Feather light strokes without giving any pressure to the underlying tissue is the mainstay of this technique. Also the rotary instrument/bur is not kept in one place for a long time as it may result in thermal trauma and permanent damage to underlying tissue. Healing of gingival tissues using bur abrasion is similar to the scalpel technique[10,11]. Use of combination of both the above discussed technique is also reported in literature as was used in the present case.

Post-surgical repigmentation of gingiva has been previously reported and the well-known reason behind repigmentation mechanism is unclear but the "migration theory" seems to be favored. According to this theory repigmentation is described as spontaneous and has been attributed to the activity and migration of melanocytic cells from surrounding areas[3,12]. In the present case, certain localized areas of repigmentation were seen at the end of 1 month. At the end of 6 months, no further repigmentation was seen.

CONCLUSION

Among the above mentioned techniques, we found the scalpel technique and bur abrasion method as relatively simple, easy to perform and inexpensive. Also it causes less discomfort during and post-operatively and is esthetically acceptable to the patients as well as with respect to expenses also.

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